HANFORD SITE TECHNOLOGY COORDINATION GROUP
MANAGEMENT COUNCIL MEETING MINUTES

February 6, 2001
EESB Snoqualmie Room
8:15 a.m. – 12:00 noon

INTRODUCTIONS/ANNOUNCEMENTS

Debbie Trader opened the meeting and announced Marcus Glasper as the new team lead for Site Technology in AMT and the new STCG Coordinator. He has a lot of history with technology, most recently with the Tanks Focus Area. Introductions were made around the room, and then Marcus provided an overview of the meeting agenda.

Paul Kruger made several announcements. He distributed a new organization chart for the Office of Associate Manager for Science and Technology. S&T has been elevated to a position that reports directly to Keith Klein. There are two focuses for S&T at Hanford: PNNL (Office of Science) and EM-50. One other significant change is that Debbie Trader has agreed to move into a Science Advisor position for Paul Kruger and Julie Erickson. She is currently acting in the Division Director role for the next 2-3 months, but a vacancy is being announced to fill that position.

We have a new Secretary of Energy – Spencer Abraham. His official biography was distributed. Currently, he is focused very strongly on energy crises issues. There hasn't been any focus on S&T activities, so we don't have a good feel yet on what positions he will take on S&T issues. We will be educating him on science and technology issues and activities.

We also have a new RL Deputy Manager for Site Transition – Mike Schlender. Previously, the person in this position was the chair of the STCG; however, Mike is serving in his capacity under an intergovernmental personnel appointment, affiliated with PNNL. To avoid any potential conflicts of interest, Paul Kruger will chair the STCG, although Mike will be involved and has pledged his support to the STCG.

A new contract with Fluor Hanford was issued, and it has been extended for five more years. The new contract was significantly rewritten with performance incentives for accelerating cleanup of the Hanford Site. FH will require new, innovative, cost-effective technologies to get their incentive fees. The contract also requests that FH serve as co-chair of the STCG.

There is a new contractor for the tank waste vitrification plant – Bechtel Washington Group. They will be working with Harry Boston to bring in new technologies, and they are also still working with CHG.

SITEWIDE S&T ASSESSMENT
Tom Wood and Wayne Johnson, PNNL

Tom Wood presented an overview of the context and objective of the exercise. Last year's Site Schedule Options Study resulted in the Hanford cleanup work being rescheduled to support the new Site outcomes – Restoring the River Corridor and Transitioning the Central Plateau. In August 2000, while Gerald Boyd was here for a retreat, he asked for a Site-level perspective on S&T priorities. It was felt that not enough attention was being paid to longer-term S&T needs.

A joint AMI/AMT program was launched to develop an integrated S&T assessment. What we have right now is not a plan – it's an assessment of the high-priority areas where S&T could have big impacts. The assessment was driven from the top down. A lot of work needs to be done to turn it into a plan. It's a single strategic perspective of Hanford Site needs and will be ready for HQ submission in late February.

The process for the S&T Assessment was first to develop a list of strategic closure challenges. The criteria used to identify these strategic closure challenges were:

- Challenges require large investments or long time frames to complete.
- Confidence in achieving the desired outcomes for the challenge is low or very uncertain.
- Feasibility of desired endpoints or endstates is still uncertain or undefined.
- Breakthrough opportunities are possible by simplifying requirements, accelerating schedules, or improving efficiencies.

There were 10 challenges specific to the RL mission plus one on integration with ORP. The team had to assess the stakes for each challenge and determine S&T opportunities. These challenges were charted with the S&T application spectrum (from fundamental science through technology deployment) on the vertical axis and the challenge resolution time frame on the horizontal axis.

The challenges were compared to the existing S&T needs statements to make sure they weren't at odds with each other. The team also tried to relate the existing TIPs to the 10 challenges. They found that work is ongoing in all areas. There were very few S&T needs statements that could not be tied to one of the challenges, so the framework is reasonably complete. They plan to do more detailed roadmapping in the next phase of the assessment.

Wayne Johnson discussed each of the following 11 challenges. One quarter to one third of the Site baseline cleanup cost is tied up in these challenges, so there are big opportunities for cost savings. Some members started to ask detailed questions about specific challenges, and Wayne agreed to attend future Subgroup meetings to discuss the details.

1. Retrieval of Remote-Handled Waste

2. RH-TRU Handling and Disposition

3. Highly Contaminated Facility Deactivation and Decommissioning

4. Nuclear Material Management

5. Groundwater/Vadose Zone Phenomenology

6. Groundwater Remediation

7. Subsurface Soil Access

8. Surface Barriers

9. Canyon Disposition

10. Final Reactor Disposition

11. Integration with ORP – Final closure and remediation of waste tanks and surrounding areas has challenges similar to those facing RL. RL and ORP are committed to working together to solve common challenges facing both operations offices.

The following potential S&T opportunities were identified (key to Site success):

- RH Waste Retrieval and Processing
- Surface Barrier Confirmation Testing
- Groundwater and Subsurface Technology
- Massive Facility Disposition Options.

Their preliminary principal recommendations were to:

- Provide increased focus on developing and deploying groundwater remediation technologies – guided by results of an accelerated remediation roadmap.
- Develop a focused program for assessing and developing technologies for retrieval and disposition of remote-handled wastes.
- Focus GW/VZ SAC capabilities on immediate issue of urgency, deferral, and priority for soil site remedial actions.
- Pursue testing and development of modified surface barrier concepts and associated monitoring techniques.
- Support canyon disposition and reactor block disposition decisions and target follow-on S&T development activities for future implementation.
- Work in close cooperation with the Hanford STCG to ensure that integrated S&T needs are included in project baselines and requests for incorporation in National Focus Area and EMSP basic research initiatives.

The path forward is as follows:

- The report has been drafted and is undergoing internal review. A revised draft is expected to be available by mid-February.
- The report will be sent to the STCG for review.
- Comments will be incorporated and a draft sent to EM-50 in February.

Questions/Comments:

Nancy Uziemblo - One of your objectives is to work with ORP. They have a different plan. Are you concerned about sending two different messages back to HQ? She would like to see the report be a combination of ORP and RL (i.e., a Hanford Site perspective). Wade Ballard said that there has been a lot of discussion with ORP. When they complete their assessment, we can integrate it with ours.

Nancy stated that she did not want to lose sight of the near-term S&T needs that the STCG has developed. She asked what HQ would be doing with this information. The strategy is to work with Gerald to market this either in the Department or in Congress. Tom Page indicated that when Gerald was here he said, "If you tell me what your needs are, I will work with you to see that they get funded." Jim Hanson said that what we have is an assessment. We will continue to develop an S&T plan. Once Gerald has that plan, he can see what Hanford's needs are, and we will continue to work with him in the outyears to get our needs funded.

Nancy asked what the timing of the plan was. Tom Wood said that it should be done by the end of the FY. Roadmapping would be a key element. Debbie Trader said that there is an ongoing discussion of how we balance short-term versus long-term needs.

UPDATES

Corrosion Probe Deployment Update - Glenn Edgemon, HiLine Engineering

Ken Gasper explained that CHG has added 43,000 gallons of concentrated caustic to tanks in the last two weeks and are scheduled to add caustic to three other tanks during this fiscal year to bring them into chemical specification to prevent corrosion. The major problem with adding caustic is that we have to make glass out of it in the future, and that is expensive. The corrosion probe offers an alternate approach that will positively impact the tank integrity program.

Glenn Edgemon, HiLine Engineering and Fabrication, discussed the recent corrosion probe deployment. Glenn has been involved with this program for a long time. Gar Norman, CHG, is the technical point of contact.

This technology has been around since 1995. The most recent deployment occurred on January 3, 2001. It was the 4th system installed in the 241-AN tank farm. The installation took only about 3 hours due to some design changes in the probe. The system is working well and showing uniform corrosion.

The system has eight channels of electrodes on a 56-foot long one-inch pipe. Corrosion of the electrodes on the pipe is assumed to be the same as the corrosion occurring in the tank. Different types of corrosion cause different fluctuations in the current. The probe features an adjustable collar that prevents it from touching the tank bottom. Another problem is getting it vertical to insert into the tank; two cranes were used for that.

Previous installations have taken 8-9 hours. We started this installation at 8:00 a.m. and had the probe in the tank by 11:00 a.m. One improvement in this installation was the use of a water lance that is turned on just as the pipe enters the tank to cut through any waste that might be solid enough to prohibit entry. The lance reduces the cost of installation. To minimize the amount of water added to the tank, very high pressure is used with a low water flowrate. The lance ran for about 10 minutes at 5-6 gallons per minute.

Conclusions:

- water lance halved installation time
- system operating properly
- system designed to match AN-105 system
- AN-102 and AN-107 being upgraded to match
- all systems tied to integrated station
- improving tank farm operations
- program review slated for May 2001

The program review will involve industry experts in corrosion monitoring to see if this technology makes sense. The panel will consist of experts from the oil and gas industry and the water industry as well as Site operations people. HiLine Engineering would like to turn this technology over to the Site.

Dirk Dunning was pleased with the technology. It isn't the normal science and technology - it's an engineering need.

Ken Gasper said that if the results of the program review are positive, it could lead to a Baseline Change Request for incorporating the corrosion probe into operations. This would be the completion of a technology deployment and incorporation of the technology into the baseline. CHG is certainly pleased with the progress to date and they look forward to incorporating the corrosion probe into operations.

Nancy Uziemblo asked when and what it would take to implement some of this work instead of sodium hydroxide. The program has never received much interest from operations personnel. However, Glenn said he is encouraged. For the first time, people are asking about incorporating it into operations. We need to survive the program review and get to a point where the probe data can be easily interpreted by Operations.

FH Technology Update and MCO w/ Potential RF-TAG Deployment (Paul Scott, FH)

Paul stated that Fluor Hanford Technology Management has been developing project-focused S&T Plans. They are incentivized now to look for ways to achieve longer-term objectives. Technology Management is like a marriage counselor or dating service, finding matches between needs and solutions. They spend a lot of time trying to understand problems and find solutions for them.

Paul introduced Phil Ohl from Vista Engineering, who is working on technology for SNF and PFP. They have developed a pressure gauge and surveillance system for PFP 3013 containers used for plutonium oxide. The original application for the system was the SNF Project's multi-canister overpacks (MCOs). These MCOs are like those little Russian dolls that fit inside each other. The Technology Partners include:

- Fluor Hanford, Inc. -- Rich Szempruch and Mark Gibson
- Battelle Memorial Institute, PNNL -- Jim Skorpik
- Vista Engineering Technologies, LLC -- Dennis Douglas, Ken Fein, Phil Ohl

Overall needs for PFP:

- Safety monitoring
- Avoidance of container handling
- Continuous inventory

Benefits to PFP:

- Avoidance of at least $15M cost over ten-year expected storage period of materials in 3013 containers at PFP
- Avoidance of high radiation doses to personnel associated with surveillance and periodic physical inventories of vaults
- 3,000-4,000 containers would be continuously monitored for pressure, assuring worker safety and acceptability for shipment.

Apparent Solution:

- "Puck" – Internal container pressure measurement instrument placed inside a 3013 container magnetically transmits pressure data through stainless steel wall.
- "Pod" – Instrument package on each container – data transmission by Radio Frequency (RF) tagging to remote "Pack," includes pressure, temperature, radiation signature, and tampering.
- "Pack" – Data processing package can collect and track surveillance data related to safety and provide alarms for safeguards.

Summary:

- Transfer of existing technology from other DOE projects to solve PFP technology need
- Individual components are available, however, require adaptation to meet PFP 3013 system requirements
- Proceeding with support form PFP, NMFA, and FH Technology Management

Questions/Comments:

Allison Wright asked what the scope of work was for the seed money. It will be used to write a baseline design concept: what it is and how it will work.

HANFORD BENEFIT METHODOLOGY TO TECHNOLOGY DEPLOYMENTS
Jim Hanson, RL

Jim said that this presentation is based on what was given at the TIE workshop in November 2000. It provides a history of what Hanford is doing in terms of science and technology. The challenge is how do we afford the projected cleanup costs at Hanford? By identifying key decision points (TIPs), we can reduce overall cost and time to implement a technology. Then we can apply the return-on-investment (ROI) methodology to doing more work at the Hanford Site.

How: Outcome-based performance measures to integrate S&T Planning directly into the Hanford Site projects

- Issue consistent Site guidance to contractors.
- Provide incentives – issue performance measures emphasizing S&T.

Conclusions:

- A simplified approach to benefit analysis is achievable.
- The Pollution Prevention ROI model provides credibility to the process.
- Implementation of the EM pilot for benefit analysis should be viewed as an opportunity to enhance the existing Hanford model.

Questions/Comments:

Jerry White added that another benefit of this methodology is that Gerald Boyd can defend the cost savings of his S&T program. With this system, he should be able to better defend his program and hopefully get more funding from Congress.

Ken Gasper said that ORP has used this methodology and loaded their deployments and ROI information into IPABS as well.

KUDO – Hanford is the only site that filled in the ROI spaces in IPABS.

SUBGROUP REPORTS

Arlene Tortoso – Subcon Subgroup

Arlene stated that Rob Yasek is the Co-Chair of the Subcon Subgroup now. They have had two meetings since the last Management Council meeting. They talked about new technologies and tracking some technologies already on Site. There are two Innovative Treatment Remediation Demonstration (ITRD) projects in place at Hanford.

- 100-N Area ITRD: Issued the draft version of the 100-N Area Remedial Options Evaluation Summary Report that summarizes results of the studies performed, provides technology evaluations, and presents five possible remediation scenarios.

- 200-Area Carbon Tet ITRD: Conducted a path forward workshop with regulatory agencies; the draft version of PNNL's modeling report was issued; partitioning interwell tracer test (PITT) design and cost estimate was reviewed as an option for characterization.

Arlene also provided updates on the following other activities.

- MSE investigation of 200-Area uranium plume – development of implementation plans is underway.
- MSE evaluation of in situ groundwater sensors – review of sensors is in progress.
- NETL characterization of carbon tet in deep and difficult conditions – vendor proposal review completed January 25, 2001.
- Neutron probe detector for TRU-contaminated soil – field demonstration completed in September 2000; BHI-01436 summarizes results.
- SX-108 slant borehole – drilled under tank in July 2000, collected 16 samples, and obtained good characterization information.

Kevin Leary – Mixed Waste Subgroup

Size reduction is being funded by NETL. Idaho wants Kevin to be on the review committee in March to evaluate the feasibility of technology for remote size reduction of some towers at T-Plant. Hanford got $800K from NETL this year. There are other applications for the technology on Site.

The Mixed Waste Subgroup rewrote the S&T needs and they are waiting for feedback on the evaluation of the needs. They evaluated the previous needs and deleted some of the more programmatic needs. Others were combined so they would have fewer, more succinct needs. There is a new technology need for the LERF for SCFA. The GW monitoring wells have dried up and they are looking for vadose zone monitoring technologies.

Kevin will be going to Nevada at the end of February to discuss waste issues. He is also taking Rob Yasek and Mike Thompson from the Groundwater/Vadose Zone Integration Project to see the technologies they are using for vadose zone monitoring. He would like to take some of the regulators.

John Sands - D&D Subgroup

The D&D Subgroup was fairly busy. The S&T needs and TIPs were submitted and reviewed for all D&D facilities, reactors, and canyons. CDI funding for pollution prevention passed through the ASTD Program for liquid sampling and CERCLA writing. The ROD is due next fiscal year.
The F-Basin is also getting money from ASTD through NETL. The F-Basin is an outdoor basin with the roof removed that is completely filled with dirt. The top 15 feet is clean dirt. Below that there are pieces of fuel elements and other waste materials. They will be using a 3-D gamma camera and then an ISOCS to look for buried isotopes. They are purchasing a BROKK 330 robot that will also help.

Dirk Dunning asked how extensive the contamination is under the construction site for the reactor and the basin. He said there was a leakage of 500 gallons per day. John will have someone contact Dirk with the answer.

Other items mentioned:

- The 324 Building ASTD project is getting a robotic platform through Cybernetix. It is undergoing off-site testing and should arrive on site in April.

- ROSRS is a remotely operated, size-reduction, self-contained laser-cutting system for glove boxes. It is currently being evaluated; they don't know if it will be purchased.

- AEA is doing support work at B-cell. Future efforts with them are up in the air because of matching Site funding issues.

- Cybernetix, a French company, came to he Subgroup meeting and showed a video of the company and its products. They are just starting to get into the U.S. and have two projects at Hanford.

Allison Wright - Nuclear Materials Subgroup

Allison said that Bob Holt retired so Phil Loscoe is sitting in as the Nuclear Materials Subgroup Co-Lead. They are looking for a permanent replacement for Bob.

Nuclear Materials has three proposals funded by the Nuclear Materials Focus Area:
- Load-Out System (Hot Box)
- Stabilization of Plutonium Solutions (Magnesium Hydroxide Optimization)
- 222-S Laboratory Waste

The Load-Out System (Hot Box) for muffle furnace stabilization was designed to increase cycle times. FH has drafted a letter to RL saying that they don't need the hot box right now, but want the design to be completed for potential use later in the year.

The Magnesium Hydroxide Optimization team has provided great support to PFP for stabilization of plutonium solutions. The scope for testing support is written fairly broadly. The first technical exchange was held recently. PNNL did a good job putting it together with assistance from FH. NMFA gave really good feedback on the exchange and the workshop. The Focus Area asked us to submit a Task Change Request (TCR) to clarify tests that are being conducted.

222-S Laboratory Waste is a Mixed Waste need, but the NMFA is funding it. The Lead is from INEEL. Funding for FH (Larry Birchfield) is for $25K. The NMFA wants to know if there is a need or not. A letter report will be sent to the NMFA discussing this.

The Nuclear Materials Focus Area has visited twice:

- In October, they came to look at the S&T needs being developed. The draft response to the needs was received last Wednesday – a lot of them need to be reworked.
- In January, a productive meeting was held. A facility person came in and presented what we needed from the NMFA. We received a draft agenda for the NMFA Mid-Year Review March 1-2 in Tucson that overlaps with a Waste Management meeting.

Billie Mauss - Tanks Subgroup

The Tanks Subgroup has been re-established, and the first meeting was held on November 20 to review and endorse the S&T Needs. This year, we started from bottoms-up approach. The CHG and ORP managers had to endorse the needs with their signatures. We got feedback from TFA that the needs were very well written. There were needs for the Waste Treatment Plant, Vadose Zone, Single-Shell Tanks, Double-Shell Tanks, and Waste Feed Delivery. There was one complete set of needs, but within them we developed strategic needs. They were provided to TFA for the EMSP call.

The Waste Treatment Plant (Bechtel Washington Group) Technology Plan is due in April. It will be incorporated in our overall document.

Deployments:

- Corrosion Probe, January 2001
- Pit Viper is planned to be deployed hot this fiscal year

New Activities:

- CHG Technology Management monthly report - all Management Council members will be on distribution
- RPP Technology Roadmap – input from the projects will be used to develop the overall roadmap, or integrated technology plan, by the end of this fiscal year.

Questions/Comments:

Dirk Dunning asked about the new readings following SY-101 dilution. Ken Gasper will get back to him.

Dirk also asked how much power the vitrification plant would need and whether brownouts could be a problem. They have both standby electrical generators and an emergency capability (two sets of back-up gas-fired generators). The intent is not to have the capability to keep the melters running, but smooth transition to shut down. The emergency generators are seismic qualified.

FUTURE AGENDA ITEMS

- S&T Needs for Long-Term Stewardship (Beth Bilson)
- Focus Area Technical Assistance Programs (Jerry White)
- Programmatic Evaluation of OST by Pacific Rim Enterprise Center (Michael Jacobson)
- OST Program Plan and Technology Gaps (Jerry White)
- Integration of RL and ORP Needs (Nancy Uziemblo)

NEXT MEETING

The next Management Council meeting will be scheduled for mid-May. Paul Kruger asked to be put on the distribution list for Subgroup meeting announcements. He can't guarantee that he will attend, but he will try. Also, if anyone has any suggestions on how to improve the STCG, please feel free to send a message to Paul at the following e-mail address: Paul_W_Kruger@rl.gov.

ACTION ITEMS

- John Sands will have someone contact Dirk Dunning about how extensive the contamination is beneath the F-Reactor and the F-Basin.
- Ken Gasper will get back to Dirk Dunning about the new readings following SY-101 dilution.